

REMARKS

The present amendments and remarks are in response to the Office Action of September 2, 2004. Claims 6-10 are currently pending.

Reconsideration of the application is respectfully requested in view of the following responsive remarks. For the Examiner's convenience and reference, the Applicant's remarks are presented in the order in which the corresponding issues were raised in the Office Action.

In the Office Action, the following rejections were made:

- (1) claims 6 and 10 were rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Pat No. 5,990,202 (hereinafter "Nguyen");
and
- (2) claims 6, 9 and 10 were rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Pat. No. 6,090,193 (hereinafter "Nigam");
and
- (3) claims 6-10 were rejected under 35 U.S.C. 102(b) or 35 U.S.C. 103(a) as being anticipated by, or in the alternative, as obvious over U.S. Pat No. 4,795,794 (hereinafter "Winnik").

Rejections under 35 U.S.C. 102(b) and 103(a)

Before discussing the rejections under 35 U.S.C. 102(b), it is thought proper to briefly state what is required to sustain such a rejection. It is well settled that "[a] claim is anticipated only if each and every element as set forth in the claims is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros. v. Union Oil of California*, 814 F.2d 628, 2 U.S.P.Q. 2d 1051, 1053 (Fed. Cir. 1987). In order to establish anticipation under 35 U.S.C. §102, all elements of the claim must be found in a single reference. *Hybritech, Inc. v. Monoclonal Antibodies, Inc.*, 231 U.S.P.Q. 81, 90 (Fed. Cir. 1986), *cert. denied* 107 S.Ct. 1606 (1987). In particular, as pointed out by the court in *W.L. Gore & Assoc., Inc. v. Garlock, Inc.*, 220 U.S.P.Q. 303, 313 (Fed. Cir. 1981), *cert denied*, 469 U.S. 851 (1984), "anticipation requires that each and every element of the claimed invention be disclosed in a prior art reference." "The identical invention must be shown in as complete detail as is contained in the...claim." *Richardson v. Suzuki Motor Co.* 9 U.S.P.Q. 2d 1913, 1920 (Fed. Cir. 1989).

Further, before discussing the obviousness rejection herein, it is thought proper to briefly state what is required to sustain such a rejection. The issue under § 103 is whether the PTO has stated a case of *prima facie* obviousness. According to the MPEP § 2142, the Examiner has the burden and must establish a case of *prima facie* obviousness by showing some motivation in a prior art reference to modify that reference, or combine that reference with multiple references, to teach all the claim limitations in the instant application. Applicants respectfully assert the Examiner has not satisfied the requirement for establishing a case of *prima facie* obviousness in this rejection.

Rejection over Nguyen

Claims 6 and 10 were rejected under 35 U.S.C. 102(b) as being anticipated by Nguyen. Nguyen discloses ink jet inks which include a vehicle and a colorant. The colorant is associated with a primer core/shell polymer to form a primer/colorant combination. Upon printing on a print medium, the primer/colorant combination becomes encapsulated by a durable core/shell polymer. The primer core/shell polymer serves to promote adhesion of the durable core/shell polymer to the colorant and to disperse the colorant in the ink.

More specifically, Nguyen discloses several steps for preparing a primer core/shell polymer. According to Example 3, the steps employed include i) mixing a hydrophobic and a hydrophilic or highly polar monomer together; ii) adding the mixture to a solution containing a chain transfer agent, surfactant and stabilizer to form a polymeric mixture; and iii) preparing a catalyst solution and adding the polymeric mixture to the catalyst solution. Regarding i), a hydrophilic or highly polar moiety must be present to form the durable core/shell polymer (Column 3, lines 54-56). Regarding ii), the surfactant serves to promote emulsification between the monomers in this invention by binding the hydrophobic monomer to one end of the surfactant and the hydrophilic or highly polar monomer to the opposing end, thus enabling the creation of a core/shell polymer. Thus, Nguyen teaches, as illustrated in the examples, a multi-step process to produce an ink composition that has a primer core/shell polymer.

Conversely, nothing in the Nguyen reference teaches or suggests preparing amphipathic polymeric particles from a hydrophobic monomer and a second monomer that includes a convertible moiety in a hydrophobic form. More specifically, the process of the present invention involves, in a single batch, mixing an aqueous carrier, monomers containing a hydrophobic moiety, an unsaturated monomer containing a convertible moiety in a hydrophobic form, and a surfactant to form an emulsion. As stated on page 6, lines 19-24 of the present specification, the emulsion mixture has an acidic pH, and thus, the convertible monomers are in the hydrophobic form and can be converted to a hydrophilic form after the mixture's pH is adjusted to a basic range ($\text{pH} > 7$). Given the steps of the claimed invention as found in claim 6 which requires that the convertible moieties be in the hydrophobic form, and the subsequent conversion of the moiety which can take place after the polymerization (see new claim 24), it is clear that the claimed composition does not form a primer core/shell polymer. In other words, as both of the monomer types include hydrophobic moieties when put together in the batch, the monomers will not become arranged such that a core/shell polymer can be formed. These monomers would more likely assemble randomly rather than in the more structured "core/shell" configuration. When the convertible moieties are converted (as in new claim 24), the particles are already formed, and would thus not be readily capable of reorganizing to form core/shell polymers. As a result, the Nguyen reference does not disclose

each and every element of the present claims, and therefore fails to anticipate claims 6 and 10. Applicant respectfully requests that this rejection be withdrawn.

Rejection over Nigam

The Examiner has rejected claims 6, 9 and 10 under 35 U.S.C. 102(b) as being anticipated by Nigam. The Nigam reference discloses an ink composition comprising an aqueous vehicle, a binder material, colorant, and additives, such as, humectants and anti-foaming agents. The binder material described can be a single polymeric material, two or more polymeric materials in combination, a single monomeric material, or two or more monomeric materials in combination. The binder material further comprises a polymeric resin having an acidic group and a neutralizing composition of a nonvolatile organic base which provides an environment that ionically or physically entraps the colorant. The method for producing the Nigam ink composition provides dispersing a colorant in deionized water, followed by admixing with a solution of the selected binder materials in water. In a final step, Nigam teaches incorporating into the mixture specific additives, such as humectants and anti-foaming agents. The resultant composition produces particle sizes of less than about 5 μ m, and preferably less than about 1 μ m.

The present claims are drawn to methods of preparing amphipathic polymer particles, not inks *per se*. Further, even though Nigam teaches of ink compositions, nothing in Nigam teaches or suggests preparing an ink composition through the use of amphipathic particles that include convertible moieties as prepared by claim 6 of the instantly claimed invention. Claim 6 provides a method that produces amphipathic particles including the steps of i) admixing an aqueous carrier, a monomer containing a hydrophobic moiety, a monomer containing a convertible moiety in hydrophobic form, and a surfactant to form an emulsion; ii) initiating a polymerization by adding a catalyst to the emulsion; and iii) continuing polymerization at a temperature and for a period of time sufficient to form amphipathic polymer particle having a size range of 50-500nm. Regarding step i) the emulsion mixture contains convertible moieties in hydrophobic form, which can be converted from a hydrophobic form to a hydrophilic form after polymerization takes place, as stated on page 6, lines 17-24, and as claimed in new claim 24. Accordingly, the present invention utilizes an emulsion process coupled with a

catalyst to initiate the polymerization process to achieve the desired particle sizes. Nothing in Nigam teaches utilizing an emulsion process which incorporates a catalyst to produce the claimed particles, which are formed, at least in part, of a monomer including a convertible moiety in a hydrophobic form.

As a result, the instantly claimed invention is not anticipated by the cited reference, as Nigam lacks at least one element of the instantly claimed invention. Furthermore, as claim 6 is in condition for allowance and claims 9 and 10 depend from an allowable claim, Applicant respectfully requests withdrawal of this rejection with respect to each rejected claim under this section.

Rejections over Winnik

The Examiner has also rejected claims 6-10 as being anticipated by or in the alternative as obvious over Winnik. Winnik discloses a process for affecting the preparation of color particles. More specifically, Winnik discloses a process for preparation of toner particles. As noted by the Examiner, the process encompasses dispersion polymerization processes where a monomer has a dye moiety permanently attached. The process also involves dissolving two monomers into a solvent, where one of the monomers has the dye moiety is attached thereto, adding an initiator to the mixture, heating the mixture, and retrieving the product from the mixture. There is no mention of the use of a surfactant, nor is there any discussion of utilizing a monomer including a convertible moiety in a hydrophobic form.

In contrast, the presently claimed invention is directed toward a method for producing amphipathic polymer particles from an unsaturated monomer containing a hydrophobic moiety, a monomer containing a convertible moiety in a hydrophobic form, and a surfactant. Optionally, a polymerizable dye monomer can also be present (see dependent claim 8). The required surfactant plays a role in carrying out the emulsion polymerization process in that it is used to reduce the interfacial tension between monomers and the aqueous vehicle. A process that is devoid of the use of a surfactant is generally known as a dispersion polymerization, which is the process described in Winnik, and which is a distinguishable process. For example, emulsion polymerization processes involve the emulsification of monomer droplets within a continuous aqueous phase, and a surfactant is utilized to stabilize the process. A micelle can be formed next to the stabilized monomer droplets, or can surround the

monomer droplets. Micelles are not formed without a surfactant. Conversely, with dispersion polymerization, the monomers are typically dissolved in a selective aqueous medium. The particles are formed early in the polymerization process, and the particles are typically at the center of polymerization.

Accordingly, the instantly claimed invention is not anticipated by the cited reference, as Winnik lacks at least one element of the instantly claimed invention. Furthermore, as claim 6 is in condition for allowance and claims 7-10 depend from an allowable claim, Applicant respectfully requests withdrawal of this rejection with respect to each rejected claim under this section.

Applicant further contends that claim 6 is not *prima facie* obvious in view of the cited Winnik reference. As mentioned, Winnik teaches producing polymer particles for application in a toner composition by means of a dispersion polymerization process. Surfactant is not used in Winnik, and there is no suggestion that surfactant can be added. The Examiner has stated that the particles formed would be the same with dispersion polymerization and the emulsion polymerization of the present invention. Though the Applicant disagrees with this, this point is irrelevant, as the present claims are drawn toward a method of preparing particles. As there is no suggestion in Winnik to modify its teachings to use a surfactant, by definition, the present claims cannot be obvious over Winnik. Further, Winnik does not teach or suggest of the use of monomers containing convertible moieties in their hydrophobic form during particle formation, nor is there any suggestion for such a modification. Thus, for this reason as well, Winnik does not render the present claims obvious. As a result, the Applicant respectfully requests that this rejection be withdrawn as well.

CONCLUSION

In view of the foregoing, Applicant believes that claims 6-10 present allowable subject matter and allowance is respectfully requested. If any impediment to the allowance of these claims remains after consideration of the above remarks, and such impediment could be removed during a telephone interview, the Examiner is invited to telephone Susan E. Heminger at (650) 236-2738 so that such issues may be resolved as expeditiously as possible.

Please charge any additional fees except for Issue Fee or credit any overpayment to Deposit Account No. 08-2025.

Dated this 2nd day of December, 2004.

Respectfully submitted,



M. Wayne Western
Attorney for Applicant
Registration No. 22,788

Gary P. Oakeson
Attorney for Applicant
Registration No. 44,266

Of:

THORPE NORTH & WESTERN, LLP
8180 South 700 East, Suite 200
Sandy, Utah 84070
(801) 566-6633

On Behalf Of:

HEWLETT-PACKARD COMPANY
1501 Page Mill Road
Mailstop 1197
Palo Alto, CA 94304-1126
(650) 852-8063